

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number
WO 2005/040769 A2

(51) International Patent Classification⁷: G01N 21/00

(21) International Application Number: PCT/US2004/031609

(22) International Filing Date: 23 September 2004 (23.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 10/669,101 23 September 2003 (23.09.2003) US

(71) Applicant (for all designated States except US): CAMBRIDGE RESEARCH AND INSTRUMENTATION, INC. [US/US]; 35-B Cabot Road, Woburn, MA 01801 (US).

(72) Inventors; and

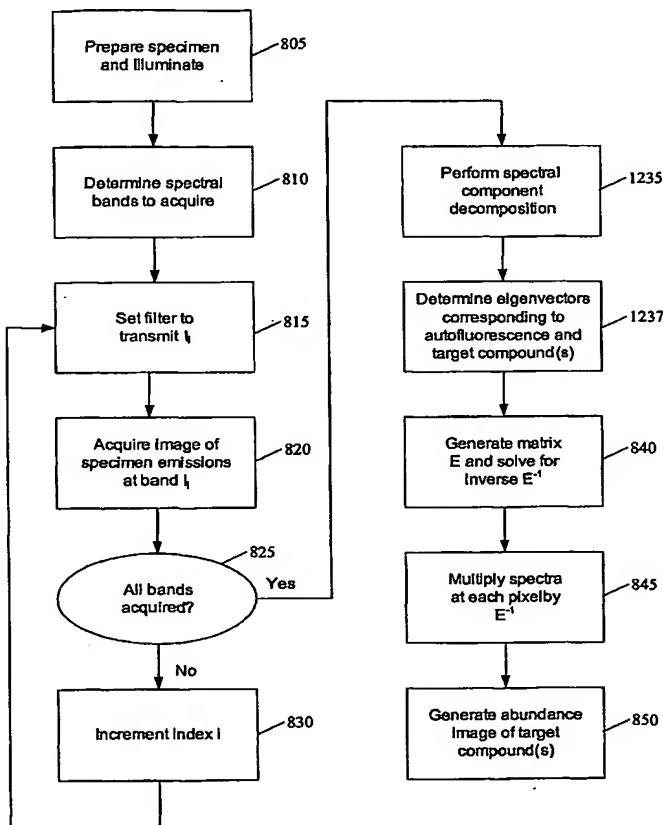
(75) Inventors/Applicants (for US only): LEVENSON, Richard, M. [US/US]; 52 Greycliff Road, Brighton, MA 02135 (US). CRONIN, Paul, J. [AU/US]; 286 Bunker Hill Street, Apt. 4, Charlestown, MA 02129 (US). GOSSAGE, Kirk, William [US/US]; 21 Aurore Avenue, Manchester, NH 03109 (US). HOYT, Clifford, C.; 135 Washington Street, Wellesley, MA 02481 (US).

(74) Agent: FEIGENBAUM, David, L.; Fish & Richardson P.C., 225 Franklin Street, Boston, MA 02110-2804 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: SPECTRAL IMAGING OF BIOLOGICAL SAMPLES



(57) Abstract: The invention features a method including: (i) providing spectrally resolved information about light coming from different spatial locations in a sample comprising deep tissue in response to an illumination of the sample, wherein the light includes contributions from different components in the sample; (ii) decomposing the spectrally resolved information for each of at least some of the different spatial locations into contributions from spectral estimates associated with at least some of the components in the sample; and (iii) constructing a deep tissue image of the sample based on the decomposition to preferentially show a selected one of the components.

WO 2005/040769 A2



(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.